



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

D350-748-203
Job Sheet 173652



Part No: D350-748-203

Job Qty: 1 ea

4650

Part Name: AS350 / AS355 Stainless Steel Aft Crosstube



Part Weight: 0 lbs

Status: Scheduled

Priority: Medium

Job Created: 3/6/18

Job Tracking No:

Due Date: 4/25/18

Created By: Michelle Gagnon-Donovan

Type: Stock

Description:

Ship Via:

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		Sign-off
					Setup hrs	Run hrs	Workcenter / Supplier	Lead Time	
90	Start up Operation	1 Ea	4/24/18	4/24/18	0.00	0.00	Start Up Crosstubes-1		GP 18-06-28
110	CNC Bend Crosstubes	1 pcs	4/24/18	4/24/18	5.40	2.44	CNC Bend Crosstube		DPZ 18-06-29
120	Crosstubes	1 pcs	4/24/18	4/24/18	0.00	2.19	Crosstubes-2		DPZ 18-06-27
127	QC	1 pcs	4/24/18	4/24/18	0.00	0.00	QC15		38
128	Crosstubes	1 pcs	4/24/18	4/24/18	0.00	1.98	Crosstubes-2		GP 18-07-12
130	Crosstubes	1 pcs	4/24/18	4/24/18	0.00	2.89	Crosstubes-2		GP 18-07-12
140	QC	1 pcs	4/24/18	4/24/18	0.00	0.00	QC6		38
174	Outsource	1 pcs	4/24/18	4/24/18			SKY002-VC	P10.04052	18-07-19
176	Packaging	1 pcs	4/24/18	4/24/18	0.00	0.00	Packaging2		JUL 18 2018
178	QC	1 pcs	4/24/18	4/24/18	0.00	0.00	QC5		38
180	SprayPaint	1 pcs	4/24/18	4/24/18	0.00	1.07	Spray Paint		AP 18-07-19
190	QC	1 pcs	4/24/18	4/24/18	0.00	0.00	QC14		PD 18-07-25
200	Crosstubes	1 pcs	4/25/18	4/25/18	0.00	2.89	Crosstubes-2		AP JUL 20 2018
210	QC	1 pcs	4/25/18	4/25/18	0.00	0.00	QC5		PD 18-07-25
220	Packaging	1 pcs	4/25/18	4/25/18	0.00	0.00	Packaging1-3		JUL 25 2018
230	QC	1 pcs	4/25/18	4/25/18	0.00	0.00	QC4		DAS 18-07-25
235	DC	1 pcs	4/25/18	4/25/18	0.00	0.00	DC		21 SmB
240	Packaging	1 pcs	4/25/18	4/25/18	0.00	0.00	Packaging3-1		9-89 JUL 27 2018
250	QC21-FG	1 Ea	4/25/18	4/25/18	0.00	0.00	QC21		DAS 21 JUL 27 2018

Part Op 110 - Bend tube as per Dwg D350-748-243 using CNC bender program D350A and Folio FT
Descriptions: 120 - ****VERIFY CROSSTUBE DIMENSIONS AS PER DWG****

127 - ***MARK CUT LINES***

128 - CUT TUBE AT HEIGHT ON FAI SHEET

130 - 2- Drill Tube as per Dwg D350-748-243 Using DT8876 Drill Jigs, 4- Engrave Part # and Batch # as per Dwg D350-748-243 5-Remove all marks from tube within limits of D350-748-243

174 - ISSUE P/O TO SKY SERVICE:

180 - ***VERIFY BY _____ BATCH # TO MATCH W/O Primer 5084461 Paint 138886

190 - Then, Wrap in plastic bag to protect from scratches

200 - INSTALL GROUND WIRE INSERT, THEN INSERT SCREW AND WASHER 2-Install supports with Proseal 890 per D350-748-243 and QSI 015 3-Install supports clamps Using Dt8876 as per Dwg D350-748-243, Torque to 60-80 IN-LBS.

210 - ***RE-CHECK TORCQUE ON CLAMP AFTER PROSEAL HAS CURED FOR 72HOURS AS PER DWG.***

230 - ***VERIFY BY _____ BATCH # TO MATCH W/O _____

235 - Photocopy bluefile & type labels per PPPD350-748-201 CHG001

240 - Identify and pack for shipping as per PPPD350-748-203



Container No: S088384



Part: D350-748-203

Job No: 173652

Serial No/Batch: S088384

Revision:

Inspector:

Exp Date:

Instructions:

Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
CANADA
TEL: 1 813 632-5200
Email: sales@dartaero.com
www.dartaerospace.com

Date: 06/26/18

Job BOM

Part / Item	Component Name	Quantity	Operation	Container
D350-748-243TRN	Crosstube Installation, High Aft	1 Ea (1 ea)	90-Start up Operation	
AETC-1032	Insert	1 Ea (1 ea)	200-Crosstubes	
D3502-1	Support	2 Ea (2 ea)	200-Crosstubes	
D5123-7	Clamp Cushion	2 Ea (2 ea)	200-Crosstubes	
MS21920-20	Clamp	2 Ea (2 ea)	200-Crosstubes	
NAS1149C0363R	Washer	1 Ea (1 ea)	200-Crosstubes	
AN4-41A	Bolt	8 Ea (8 ea)	220-Packaging	
AN4-6A	Bolt	16 Ea (16 ea)	220-Packaging	
AN5-32A	Bolt	4 Ea (4 ea)	220-Packaging	
D3500-1	Saddle	4 Ea (4 ea)	220-Packaging	
D3501-1	Bushing	16 Ea (16 ea)	220-Packaging	
MS21042L4	Nut	24 Ea (24 ea)	220-Packaging	
MS21042L5	Nut	4 Ea (4 ea)	220-Packaging	
MS51958-63	Screw	1 pcs (1 ea)	220-Packaging	
NAS1149D0463J	Washer	32 Ea (32 ea)	220-Packaging	
NAS1149D0563J	Washer	8 Ea (8 ea)	220-Packaging	

Job Allocations

Operation	Component Part	Required	Inventory	Allocated
90-Start up Operation	D350-748-243TRN 173652	1	0	0
200-Crosstubes	AETC-1032 FM137335	①	242	0
	D3502-1 F163478	②	62	0
MS51958-63 FM137962 ①	D5123-7 F153236	②	145	0
	MS21920-20 5024478	②	112	0
	NAS1149C0363R 5017102	①	350	0
220-Packaging	AN4-41A	8	230	0
	AN4-6A	16	804	0
	AN5-32A	4	114	0
	D3500-1	4	101	0
	D3501-1	16	187	0
	MS21042L4	24	3,884	0
	MS21042L5	4	849	0
	MS51958-63	1	73	0
	NAS1149D0463J	32	5,081	0
	NAS1149D0563J	8	1,290	0

Part Specifications

Specifications could not be found.

Plex 3/6/18 10:30 AM Dart.Gagnon.Michelle

Item	Qty -243	Part Number	Description
1	X	D350-748-243	CROSSTUBE ASSEMBLY (AS 350/355 HI AFT)
2	1	D6021-125	CROSSTUBE
3	2	D3502-1	SUPPORT
4	2	D5123-7	CLAMP CUSHION
5	1	AETC-1032	INSERT
6	2	MS21920-20 OR MS21920-21/-22	CLAMP (PER DART SPEC. M-MS21920-20/-21/-22)
7	1	NAS1149C0363R	WASHER (OR AN960C10)
8	1	NAS1635-3-8	SCREW (OR MS51958-63)
9	A/R	PROSEAL 890 B-2	SEALANT, AMS-S-8802 CLASS B-2

GENERAL NOTES:

- MATERIAL: MANUFACTURED FROM D6021-125
FINISHED LENGTH AFTER TURNING = 124.70±0.06 (AFTER BENDING/TRIMMING = 122.70 REF)
- FINISH: PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- TOLERANCE: PER DART QSI 018 UNLESS OTHERWISE NOTED.
WALL THICKNESS ECCENTRICITY PER DART QSI 038 7.2
MIN. ALLOWABLE WALL IS -0.020 FROM NOMINAL
- UNITS: INCHES UNLESS OTHERWISE NOTED.
- BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- IDENTIFICATION: DART PART NUMBER "D350-748-243" AND BATCH NUMBER ON INSIDE OF CUFF
PER DART QSI 044 6.4 (VIBRATING STYLUS)
- WEIGHT: 29.85 lbs
- PART IS SYMMETRIC ABOUT CENTERLINE, EXCEPT FOR Ø0.290 HOLE.
- EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE. WHEN DRILLING HOLES EXTREME CARE MUST BE TAKEN AND CAREFUL DEBURRING PERFORMED TO ENSURE A CLEAN HOLE WITH NO CRACKING/CHIPPING/GROOVES.

TURNING

- BLEND OUT ALL EDGES FROM MACHINING LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH. NOTE: ALL HOLES ARE DRILLED AFTER BENDING.

BENDING

- BEND PROGRESSIVELY WITH A MINIMUM OF 7 PASSES PER SIDE. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D. ON TOP HALF OF BEND, AND 8% ON BOTTOM HALF OF BEND.
- MAX AMPLITUDE OF RIBBLING ALONG BENT PORTION OF THE TUBE IS 0.030 (ZN A1-3)
- MAX TWIST: WITH XTUBE LAYED FLAT ON SURFACE, THE DIFFERENCE BETWEEN CUFF HEIGHTS FROM THE SURFACE MAY BE NO LARGER THAN 0.38 (ZN C1-3).

ASSEMBLY

- TO INSTALL D3502-1 SUPPORT: ABRASE MATING SURFACE OF SUPPORT AND CROSSTUBE WITH 180-GRIT SANDPAPER AND REMOVE RESIDUE WITH MEK (OR EQUIVALENT). APPLY A 0.02" TO 0.05" THICK LAYER OF PROSEAL 890 CLASS B-2 (OR AMS-S-8802 CLASS B-2) SEALANT TO MATING SURFACE OF SUPPORT.
- TORQUE CLAMPS 80 TO 80 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING. PRIOR TO PACKAGING, RE-CHECK TORQUE ON CLAMPS AFTER PROSEAL 890 SEALANT HAS CURED FOR 72 HOURS.

SHOP COPY
RETURN TO
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UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 173652
MAR 06 2018

DEO ATTACHED

RELEASED

2015 MAR 18

RELEASED

2015 MAR 18

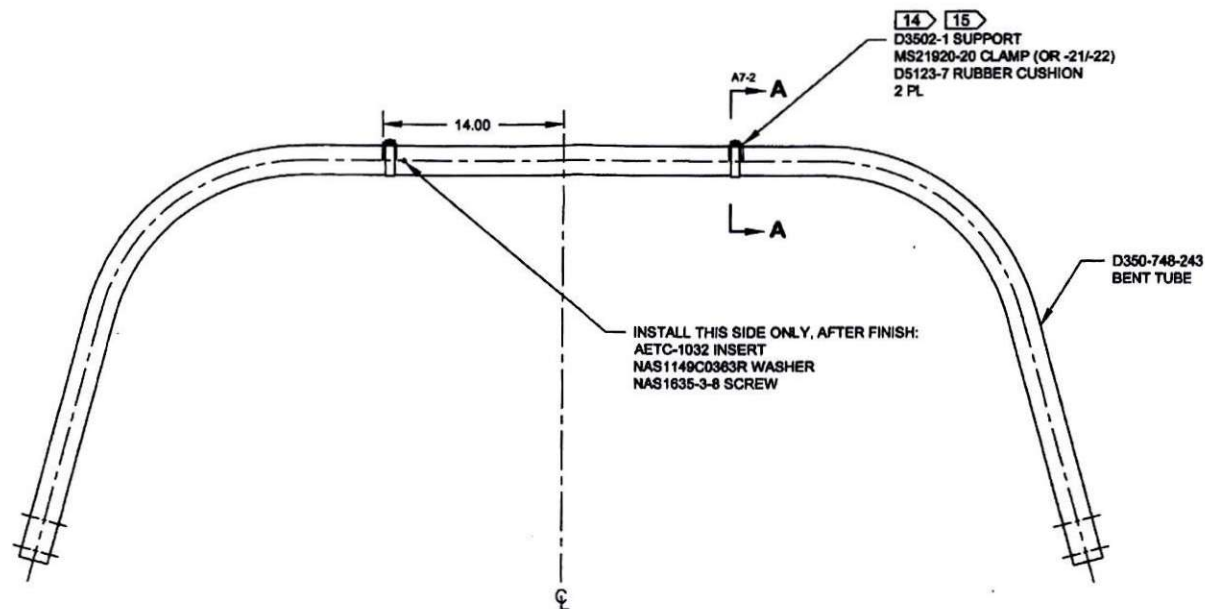
UNDER REVIEW

15/4/15
LRF 15/5/15
9/16/15

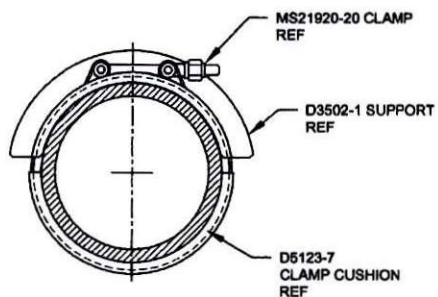
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REV.	DESCRIPTION	BY	DATE
DESIGN			
DRAWN			
CHECKED			
MFG. APPR.			
APPROVED			
DE APPR.			
DATE	15.01.21		

DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWING NO. D350-748-243	REV. A
TITLE CROSSTUBE (AS 350/355 HI AFT)	SHEET 1 OF 4
SCALE	NTS

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**D350-748-243
ASSEMBLY DETAIL**



SECTION A-A D4-2
SCALE 6X

DEO ATTACHED

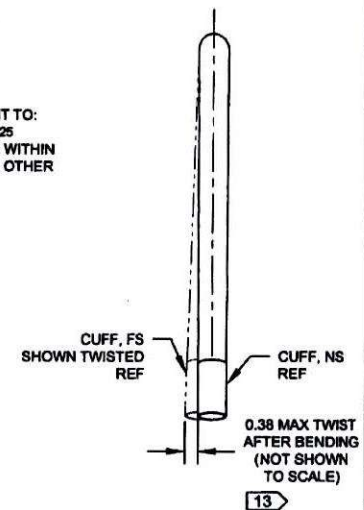
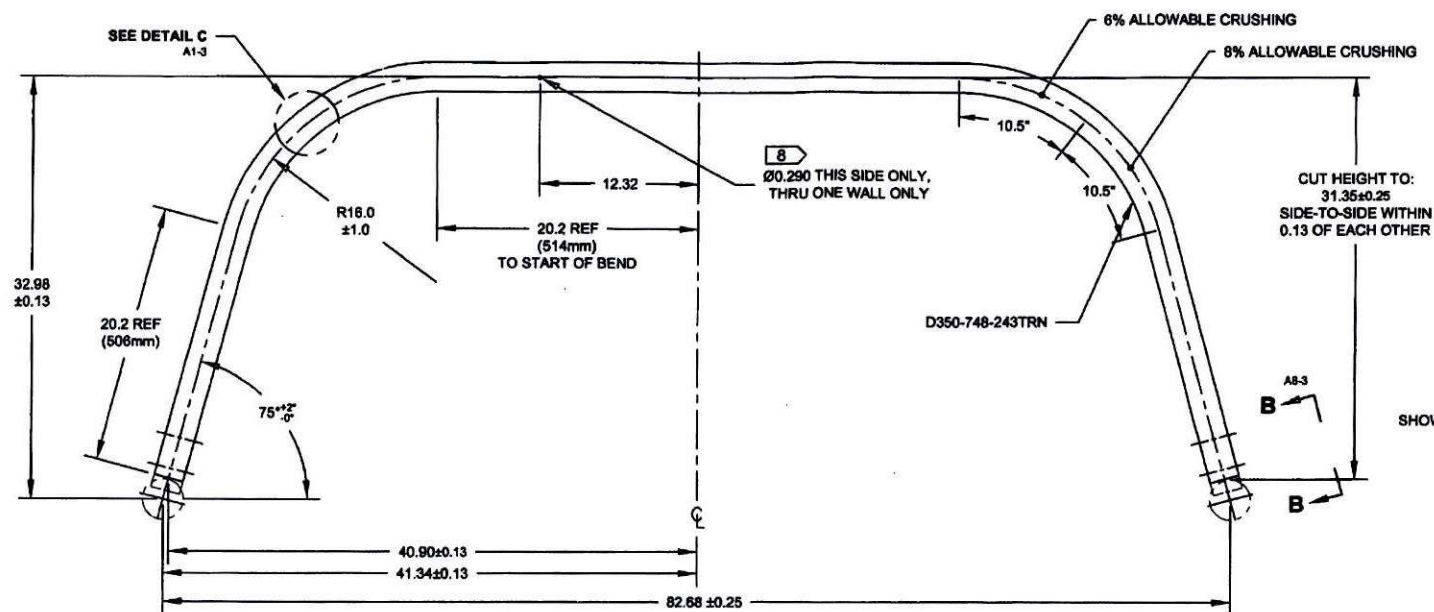
UNDER REVIEW

15/12/24
9/16/29

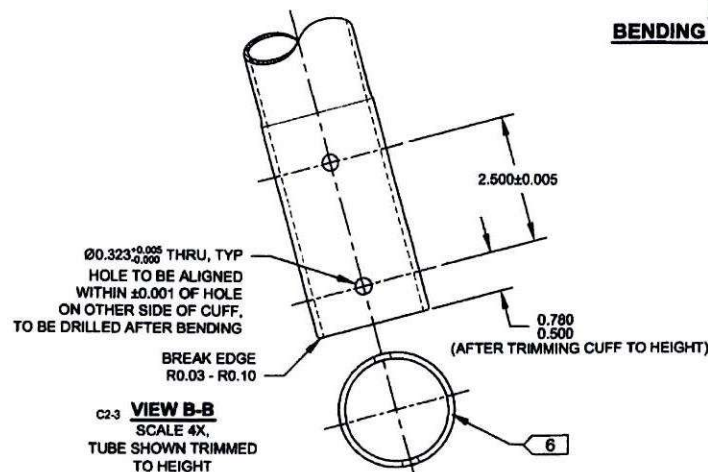
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2015 MAR 18 47

DESIGN	<i>10</i>	DART AEROSPACE LTD	
DRAWN	<i>10</i>	HAWKESBURY, ONTARIO, CANADA	
CHECKED	<i>A.P.</i>	DRAWING NO.	REV. A
MFG. APPR.	<i>7/4/24</i>	D350-748-243	SHEET 2 OF 4
APPROVED	<i>[Signature]</i>	TITLE	SCALE
DE APPR.	<i>[Signature]</i>	CROSSTUBE (AS 350/355 HI AFT)	NTS
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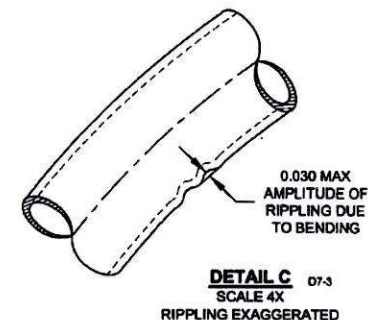
D350-748-243
BENDING AND DRILLING DETAIL 11



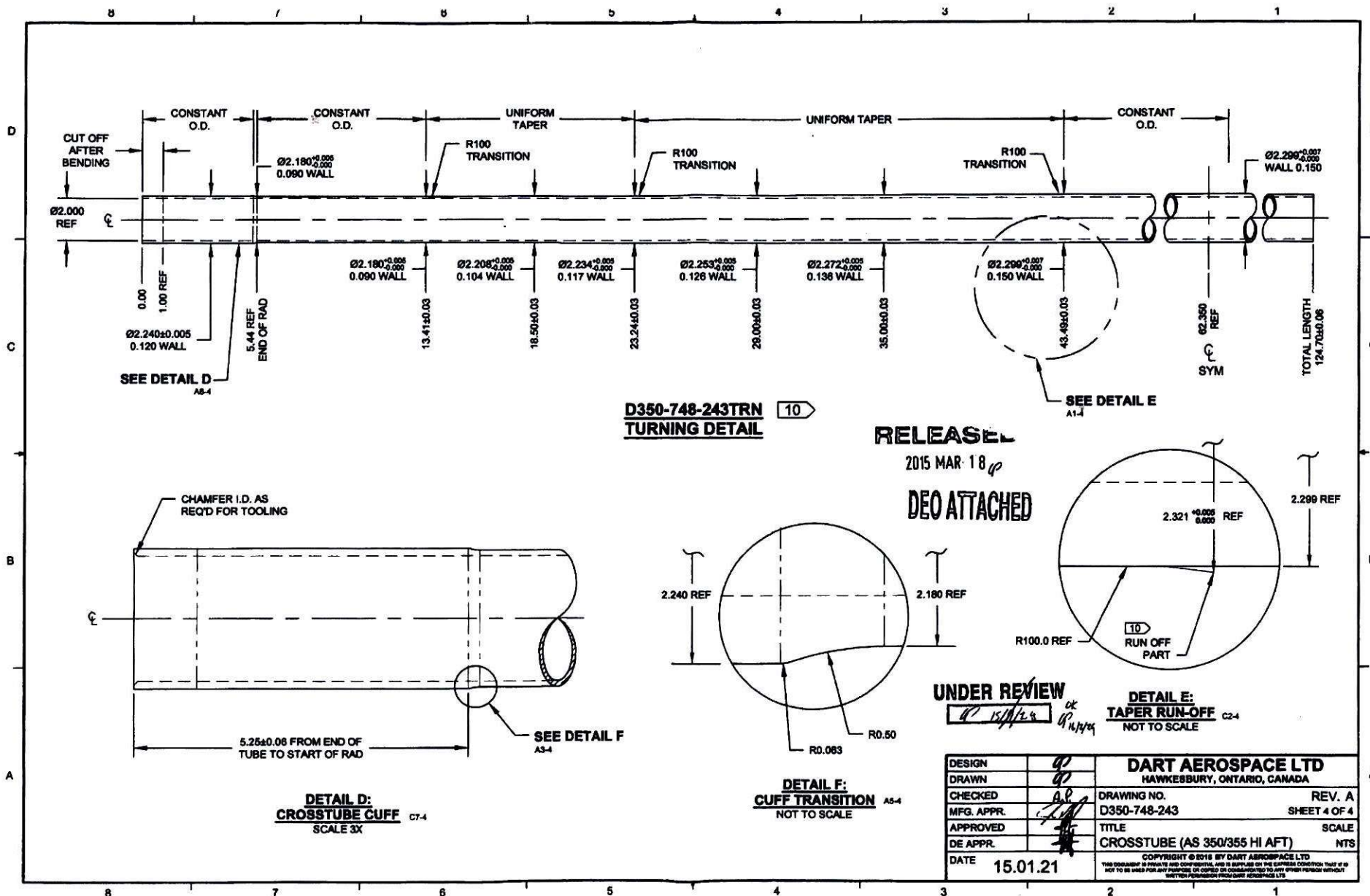
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2015 MAR 18

UNDER REVIEW

15/1/17.8 OK 16/1/17.8



DESIGN	90	DART AEROSPACE LTD	
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CHECKED	A.P.	DRAWING NO.	REV. A
MFG. APPR.	<i>[Signature]</i>	D350-748-243	SHEET 3 OF 4
APPROVED	<i>[Signature]</i>	TITLE	SCALE
DE APPR.	<i>[Signature]</i>	CROSSTUBE (AS 350/355 HI AFT)	NTS
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DRAWING NO. D350-748-243	TITLE CROSSTUBE	REV. A	DART AEROSPACE LTD ENGINEERING ORDER		D.E.O. NO. D350-748-243-A-1	SHEET NO. SHEET 1 OF 1	SCALE NTS
DRAWN <i>Q</i>	CHECKED <i>ASS</i>	MFG. APPR. <i>[Signature]</i>	APPROVED <i>[Signature]</i>	DE APPR. <i>[Signature]</i>			
DATE 15.11.18	DATE 15.11.18	DATE 16.02.19	DATE FEB 19 2016	DATE 2016.02.19			

AMEND NOTE 2 (SHEET 1) AS FOLLOWS:

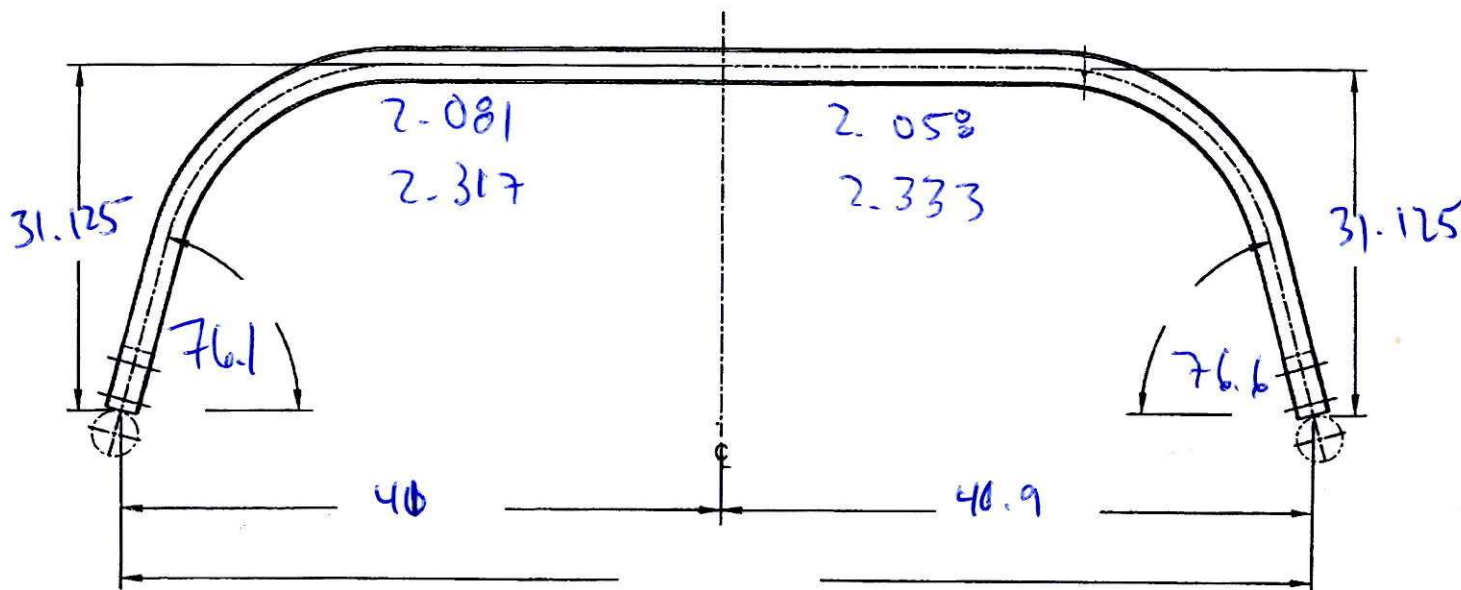
- 2) FINISH: PREPARE SURFACE PER DART QSI 005 4.1.4
 PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
 PAINT OUTSIDE PER DART QSI 005 4.2
 OR
 POWDER COAT WHITE (4.3.5.2) PER DART QSI 005 4.3

RELEASED
 2016-02-26
EN 16-534

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DART AEROSPACE LTD		Work Order: 173652
Description: Crosstube High Aft, SS (AS350/355)		Part Number: D350-748-203
Inspection Dwg: D350-748-243 Rev: A		Page 1 of 1

Required Dimension	Min	Max
Height	31.10	31.60
1/2 Span	40.77	41.03
Angle	75	77
Total Span	81.54	82.06
Bending Passes	7	--
Crushing	--	8%
Twist	--	0.38



	Side A	Side B
Bending Passes	40	42
Crushing	5.1%	6.3%
Comments		

QC15 Inspection	JP
Date	18-07-08

Rev	Date	Change	Revised by	Approved
A	15.09.09	New Issue	KJ	JP

Twist: 0,039



skyservice Work Order Traveler

Sky Service F.B.O. Inc.

10105 Ryan Avenue, Dorval, Quebec, H9P 1A2

TCCA AMO 53-89 / EASA 145.7142 / BDA AMO 385

WO #: MWO36735	Customer: Dart Aerospace Ltd.	Dept: NDT YUL	Reference: PO040521
Descr:	PN:	S/N:	Qty: 1
Make:	Model:	Reg:	A/C S/N:
TSN:	CSN:	TSO:	
Task: UNSCHEDULED			Sequence: 1

Work Required:

CARRY OUT NDT (LIQUID PENETRANT CRACK TEST) ON THE FOLLOWING FOUR (7) CROSSTUBES:

P/N: D119-796-241 Aft CROSSTUBE

1- JOB SHEET# 178858

P/N: D350-748-103 STAINLESS STEEL FWD CROSSTUBE

2- JOB SHEET# 157386

3- JOB SHEET# 173649

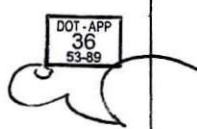
4- JOB SHEET# 173650

P/N: D350-748-203 STAINLESS STEEL AFT CROSSTUBE

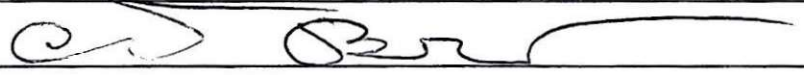
✓ 5- JOB SHEET# 173652

6- JOB SHEET# 173653

7- JOB SHEET# 178950

Action Taken:	Date:	Initial/Stamp:
LIQUID PENETRANT INSPECTION CARRIED OUT ON ITEMS LISTED ABOVE (ITEMS 1-7) AS PER ASTM1417M-16		
NO CRACK FOUND		
PEN (ZL-56, MPO13600), DEV. (SKD-S2, MPO11715), CLEANER (SKC-S, MPO19368)		
	JUL 18 2018	
Description	Location	P/N
Qty	Batch	S/N Off
S/N On		

I certified that the maintenance described above has been performed in accordance with the applicable standard of airworthiness.

Signature:	ACA/SCA Stamp	Date:
		JUL 18 2018
Name:		

CHRISTIAN BRIEN



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200
Fax 613 632-5246

Container View (Active) - Master Unit Containers

Master Unit No	Container No	Part No	Part Name	From Container	Current Location	Quantity
004650	S073817	AN4-41A	Bolt		ST342	6
004650	S096058	AN4-41A	Bolt	fm138045-2	ST342	2
004650	S096057	AN4-6A	Bolt	s058982	ST345	16
004650	S096056	AN5-32A	Bolt	s015692	ST336	4
004650	S096055	D3500-1	Saddle	f163361	ST403	16
004650	S096054	D3501-1	Bushing	s072749	ST037	16
004650	S096053	MS21042L4	Nut	s089365	ST303	24
004650	S096051	MS21042L5	Nut	s058178	ST303	4
004650	S062379	NAS1149D0463J	Washer		ST263	7
004650	S096050	NAS1149D0463J	Washer	s091558	ST263	25
004650	S096049	NAS1149D0563J	Washer	s068662	ST263	8

Note: Ad hoc query view of Part.dbo.Container where Container.Active = 1.

D3500-1 B164916X2
D3501-1 S072749X16

Plex 7/25/18 10:18 AM dart.quirion.sonia